

Air Pollution Control Permit Application Instructions

Chromium Electroplating and Anodizing Operation -- PI-30

1. Affected Tanks: Identify all affected sources. Affected sources mean each chromium electroplating or chromium anodizing tank at facilities performing hard chromium electroplating, decorative chromium electroplating, or chromium anodizing. This includes new, proposed, and existing tanks - whether or not the tank is presently operational. Process tanks associated with a chromium electroplating or anodizing process, but in which neither electroplating or anodizing is taking place, are not to be listed under item #1. Examples of such tanks include, but are not limited to, rinse tanks, etching tanks, and cleaning tanks. Likewise, tanks that contain a chromium solution, but in which no electrolytic process occurs, are also not subject to these regulations. An example of this is a chrome conversion coating tank where no electrical current is applied. Affected tanks in which research and development operations are performed must be identified under #1 even though these sources may be exempt from these regulations when such operations are taking place. Other affected sources located at a research facility are subject to the rule. Nonoperational chromium electroplating equipment is not excluded from a company's plant-wide capacity, and therefore must be listed under #1.
2. Op Type: Identify the type of process performed by each listed tank. Hard chromium electroplating means a process by which a thick layer of chromium (typically 1.3 to 760 microns) is electrodeposited on a base material. In this process the part serves as the cathode and the solution serves as the electrolyte. Typical plating times range from 20 minutes to 36 hours. Decorative chromium electroplating means the process by which a thin layer of chromium (typically 0.003 to 2.5 microns) is electrodeposited on a base material. The part serves as the cathode in decorative electroplating. Typical plating times range from 0.5 to 5 minutes. Chromium anodizing means the electrolytic process by which an oxide layer is produced on the surface of a base metal using a chromic acid solution. In chromium anodizing, the part to be anodized acts as the anode in the electrical circuit, and the chromic acid solution serves as the electrolyte. Use the following codes:

HC = hard chromium electroplating
DC = decorative chromium electroplating
CA = Chromium anodizing
O = other - please describe operation or status, label as PI-30, and attach to form.
3. Bath Type: Indicate which of the decorative chromium tanks use a trivalent chromium bath and which use a chromic acid/hexavalent bath. Use the following codes to indicate the type of bath:

T = trivalent chromium bath
H = chromic acid/hexavalent bath
4. Wetting Agent: For each decorative chromium tank that will use a trivalent bath, indicate whether or not a wetting agent will be used. Use the following codes to indicate if the agent is an ingredient of the bath or added on site. If no wetting agent is used, enter "None". Also see item numbers 19a and 19b.

I = ingredient of bath from vendor
A = added on site
5. Const. Date: Indicate for each listed tank whether the construction (or reconstruction) commenced before or after December 16, 1993. Also indicate the actual date when construction (or reconstruction) was commenced for those affected sources which:

- a) construction (or reconstruction) was commenced before January 25, 1995, and
- b) had an initial startup after January 25, 1995, and
- c) commenced construction (or reconstruction) after December 16, 1993.

For proposed tanks not yet operating, indicate the expected commencement and completion dates of the construction. A new source means any affected source, facility, or installation the construction or reconstruction of which is commenced (i.e. begun) after the EPA Administrator first proposes a relevant emission standard.

6. Startup Date: For those tanks that commenced construction after December 16, 1993, indicate the actual date of startup for those affected sources that had an initial startup date after January 25, 1995. For sources not yet operational, indicate the anticipated startup date.
7. Comp. Date: Indicate the applicable compliance date for each affected source. The owner or operator of an existing affected source (one which was constructed before December 16, 1993) shall comply with the emission limitations as follows:
- a) No later than January 26, 1996, if the affected source is a decorative chromium tanks, and
 - b) No later than January 25, 1997, if the affected source is a hard chromium tank or a chromium anodizing tank.

The owner or operator of a new or reconstructed source (one which was constructed after December 16, 1993) shall comply no later than January 25, 1995, or immediately upon startup of the source.

8. Cntrl Tech.: Indicate for each tank listed which type of air pollution control technique will be used. If presently unknown, indicate as such. If more than one type of control technique will be used, indicate all of them. For sources not yet operational, provide preliminary design drawings and design capacity if an add-on control device will be used. For reconstructed sources, indicate both the present and proposed control techniques. Use the following codes to indicate the technique used:

CMP = Composite mesh-pad systems
PBS = Packed-bed scrubber systems

PSM = Combination packed-bed scrubber and mesh-pad systems
FME = Fiber-bed mist eliminator
NWS = Non-wetting agent-type fume suppressant
WAS = Wetting agent-type fume suppressant
FBS = Foam blanket-type fume suppressant
WFB = Combination wetting agent-type suppressant and foam blanket
ADS = Combination add-on air pollution device and fume suppressant
ALT = Alternative air pollution control technique or device

9. Common Control: Indicate which tanks will be controlled by a common air pollution control device (either both a fume suppressant and a device, or just the device). A common control device means it controls: a) more than one affected source, or b) one or more nonaffected sources in combination with one or more affected sources. For each group of source and control device, use a different letter (i.e. A, if tanks 1-3 are controlled by device A, then A would be entered in this column for tanks 1,2,and 3).
10. Nonaffected: Using "YES" or "NO" , indicate whether or not the common control device in each group identified in item #9 will also have ductwork from a nonaffected source attached to it. This

rule includes special provisions for modifying the emission limit whenever a common air pollution control device also controls nonaffected sources - see 63.342(b)(2)(ii) of Subpart N.

11. Em Limit: Standards for hard chromium electroplating tanks:

During tank operation, each owner or operator of an existing, new, or reconstructed affected source shall control chromium emissions discharged to the atmosphere from that affected source by not allowing the concentration of total chromium in the exhaust gas stream discharged to the atmosphere to exceed:

- a) 0.0000066 grains per dry standard cubic foot (gr/dscf) of ventilation air, (converts to 0.015 milligrams per dry standard cubic meter); or
- b) 0.000013 gr/dscf if the hard chromium tank is located at a small, hard chromium electroplating facility and commenced construction before December 16, 1993, (converts to 0.03 mg/dscm).

Standards for decorative chromium electroplating tanks using a chromic acid bath and chromium anodizing tanks:

During tank operation, each owner or operator of an existing, new, or reconstructed affected source shall control chromium emissions discharged to the atmosphere from that affected source by either:

- c) Not allowing the concentration of total chromium in the exhaust gas stream discharged to the atmosphere to exceed 0.0000044 gr/dscf (converts to 0.01 mg/dscm); or if a chemical fume suppressant containing a wetting agent is used, by not allowing the surface tension of the electroplating or anodizing bath contained within the affected source to exceed 0.0031 pound-force per foot at any time during operation of the tank (converts to 45 dynes per centimeter). It is not required on this application to choose, at this time between the surface tension limit or the concentration limit.
- d) other
Selection of "d) other" pertains to those operations that utilize a common control device for multiple sources subject to different limits or nonaffected sources ducted into the tank's control device. For sources not yet operational, the estimate of emissions from this source must be based on engineering calculations and vendor information on control device efficiency, expressed in units consistent with the appropriate emission limits (e.g. grains/dscf, etc.). Calculations of emission estimates should be in sufficient detail to permit assessments of the validity of the calculations.
- e) NA
Standards for decorative chromium electroplating tanks using a trivalent chromium bath:
Each owner or operator of an existing, new, or reconstructed decorative chromium tank that continuously uses a trivalent chromium bath that incorporates a wetting agent as a bath ingredient is subject to recordkeeping and reporting requirements, but are not subject to an emission standard, to the work practice requirements, or to the continuous compliance monitoring requirements.

12. Alt Test: Indicate if an alternative test method or monitoring method will be submitted for approval. If an alternative air pollution control technique will be proposed for approval, provide a description of the alternative technique or device, and include as an attachment to this form.

13. Rectifier: Identify each rectifier associated with hard chromium electroplating.

14. Rectifier Capacity: Provide individual capacities for each rectifier.
15. Max. Cumulative Rectifier Capacity: Maximum cumulative potential rectifier capacity means the summation of the total installed rectifier capacity, expressed in amperes, multiplied by the maximum potential operating schedule of 8400 hours per year and 0.70, which assumes that electrodes are energized 70% of the total operating time.
16. Small/large, hard chromium: State whether the affected sources will be located at a small or a large, hard chromium source. Large, hard chromium electroplating source means an area source or major source that performs hard chromium electroplating and has a maximum cumulative potential rectifier capacity greater than or equal to 60 million ampere-hours per year. The owner or operator may choose to redesignate the classification from large to small by demonstrating that actual rectifier usage remained below 60 million amp-hr for the previous 12 month period using nonresettable meters.
17. Actual/Potential Rectifier Capacity: State whether this designation (large or small) will be demonstrated through actual or potential rectifier capacity. This only applies to hard chromium facilities. Choosing the actual capacity requires monthly recordkeeping and frequent compliance status reporting. By indicating the source is redesignating its capacity through actual rectifier usage, the owner or operator hereby accepts a federally-enforceable limit on the maximum cumulative potential rectifier capacity through the Part 70 permit. (Those interested should consult Subpart N, the NESHAP for chromium electroplating and anodizing, and realize that the amp-hr meters need to be installed 12 months prior to a notification of compliance status.
18. Major Source/Area Source: State whether the affected sources are located at a major source or an area source. Major source means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.
- 19a. Wetting Agent: For each decorative chromium tank that will use a trivalent bath, identify the wetting agent and provide a list of bath components that comprise the trivalent bath.
- 19b. Bath Components: See #19a.
20. Diagram: Provide a diagram with the listed information. Place a check for those items included in the diagram and "N/A" for items that are not applicable.

[Example]